

A LARGE NEW SPECIES OF *LITORIA* (ANURA: HYLIDAE) FROM THE TERTIARY OF QUEENSLAND

by MICHAEL J. TYLER*

Summary

TYLER, M. J. (1991) A large new species of *Litoria* (Anura: Hylidae) from the Tertiary of Queensland. *Trans. R. Soc. S. Aust.* 115(2), 103-105, 31 May, 1991.

A new species of large hylid frog of the genus *Litoria* Tschudi is described from a small series of disarticulated, and fragmentary ilia from Tertiary freshwater limestone deposits on Riversleigh Station, Queensland. The species exhibits unique characters in the form of a pair of depressions situated on the ilium, superior to the acetabular fossa, and a horizontal flange projecting medially from the ilial shaft.

Litoria magna sp. nov. is the first record of the genus from the Tertiary of Queensland, but several congeners await further study and description.

KEY WORDS: *Litoria*, new species, Tertiary, Riversleigh, Queensland

Introduction

Documentation of the rich Tertiary frog fauna from freshwater limestones on Riversleigh Station in northwest Queensland, commenced with the description of a new species of the leptodactylid genus *Lechriodus* Boulenger (Tyler 1989a). Tyler, *et al.* (1990) discuss the significance of the numerical abundance and dominance of that genus amongst the frog fossils recovered.

Two Tertiary species of *Limnodynastes* Fitzinger have been reported from Riversleigh Station (Tyler 1990), but as yet the hylid fauna is unknown.

Here I describe the first of several species of the hylid genus *Litoria* Tschudi. It is represented by a small series of ilia, is distinguished by a suite of unique characters, and is noteworthy for its particularly large size.

Material and Methods

The material is deposited in museums abbreviated in the text as follows: Queensland Museum, Brisbane - QM; South Australian Museum, Adelaide - SAM. Letters following the abbreviations are departmental identifications.

Comparative studies were based on the osteological collections of the Department of Zoology, University of Adelaide.

Osteological nomenclature follows Tyler (1976), methods of measurement and orientation of specimens follow Tyler (1989a), and stratigraphic interpretation is after Archer *et al.* (1989).

Systematics

Family: Hylidae Gray, 1825.

Sub-family: Pelodyadinae Günther, 1859.

Genus: *Litoria* Tschudi, 1838.

The diversity in external morphology in this genus is paralleled by the form of the ilium; comparative osteological data for 21 Australopapuan species was presented in tabular form by Tyler (1976). Diagnostic features are the absence of a dorsal crest upon the ilial shaft, and the presence of a shallow, longitudinal groove upon the medial surface of the shaft. The dorsal protuberance and dorsal prominence are not raised much above the superior border of the ilial shaft, but usually are well differentiated.

Litoria magna sp. nov.

FIG. 1

Holotype: QM F17627. The proximal two-thirds of a right ilium collected at Camel Sputum (C.S.) Site, Riversleigh Station, northwest Queensland.

Description of holotype: Ilial shaft curved, deep, robust, cylindrical in section proximally and lacking a dorsal crest (Fig. 1a). Medial surface of shaft with horizontal, superior flange becoming progressively more prominent and rendered more conspicuous by accompanying inferior indentation. At its distal extremity, flange extends from shaft for distance equivalent to depth of shaft (Fig. 1b).

Acetabular fossa large, with narrow but prominent rim. Pre-acetabular zone evenly rounded, with narrow separation from acetabular fossa. Sub-acetabular zone incomplete. Medial surface of acetabular region bears shallow, central cavity ca. 1.0 mm in diameter and 0.7 mm deep.

Dorsal acetabular expansion slightly truncated but apparently poorly developed, being elevated only slightly above level of ilial shaft.

Dorsal prominence and dorsal protuberance poorly developed and replaced by a pair of distinct depressions: one located superior to anterior rim of acetabular fossa, the other superior to the centre of the fossa.

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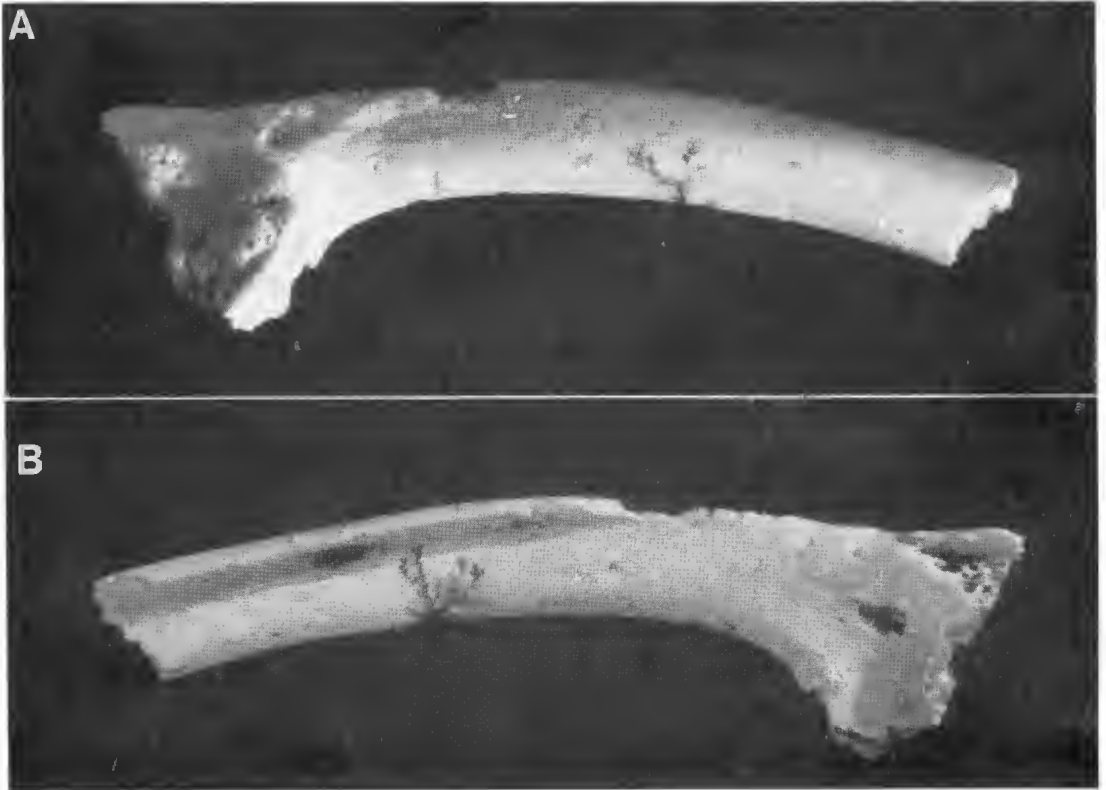


Fig. 1. Holotype ilium of *Litoria magna* sp. nov. A. Lateral surface; B. medial surface.

Length of ilium 18.7 mm; estimated length of reconstructed complete ilium 25–27 mm.

Paratypes: Four incomplete ilia: Camel Sputum Site: QM F17628, SAM P31220–21; Gag Site QM F17629.

Variation: Each of the paratypes is an incomplete and variously abraded proximal head of an ilium. Although the ilial shafts terminate at or proximal to the development of the horizontal flange, the conspecificity of the material with the holotype is demonstrated by the presence of a pair of depressions superior to the acetabular fossa. In both SAM P31220 and QM F17628, the anterior of the depressions leads anteriorly to a groove connecting to the superior margin of the shaft.

Paratype QM F17629 is highly silicified, and the elaboration of bone bordering the depressions is suggestive of localised, secondary exostosis.

The paratypes appear to be from individuals that would have been smaller than the holotype and further differ in having a more elevated dorsal acetabular expansion.

The pit reported on the medial surface of the acetabular area of the holotype corresponds to the position of a foramen in QM F17629 and is

presumably the effect of artificial enlargement of such a feature.

Paratype SAM P31221 consisted originally of the lateral face of the acetabular region and proximal ilial shaft. This fragile specimen disintegrated into three smaller fragments after it had been drawn. It probably was the corresponding portion of the more complete SAM P31220 which was extracted from the matrix at the same time.

Comparison with other species: The presence of a pair of depressions superior to the acetabular fossa, and the horizontal flange upon the ilial shaft distinguish this species from all congeners.

The depth of the ilial shaft of the holotype is indicative of a robust-bodied species, whilst examination of ilia of large species of *Litoria*, including *L. lesueuri* (Duméril & Bibron), *L. caerulea* (White) and *L. infrafronata* (Günther) suggest that *L. magna* could have been bigger than any extant species, certainly having a snout to vent length of more than 120 mm.

Stratigraphy and lithology: Archer, Godthelp, Hand & Megirian (1989) provided a preliminary assessment of the stratigraphy of the major fossil-bearing sedimentary deposits at Riversleigh. The

two sites from which *L. magna* has been recovered occur within a series of Oligo-Miocene lacustrine carbonates that range in age from approximately 15 to 25 million years BP. Camel Sputum Site occurs in limestones interpreted to be of early to middle Miocene age (within the Archer *et al.* "System B"), whereas Gag Site occurs in slightly younger middle to early late Miocene limestones (i.e. "System C" deposits).

Etymology: Latin *magna*: large, alluding to the size of the fossil species.

Discussion

Litoria is the most speciose genus in Australia and New Guinea, and osteological data have supported the sub-division of the unit into assumed natural groupings of species (Tyler & Davies 1978).

The Tertiary record of *Litoria* is poor. Isolated specimens (listed in Tyler 1989b) have not been identified to species. Thus *L. magna* is the first Tertiary member of *Litoria* to be described.

The unique horizontal flange upon the ilial shaft, and the pair of supra-acetabular pits set *L. magna* apart from all extant species, and hence does not appear to be ancestral to any modern species group.

Other species of *Litoria* from Tertiary deposits on Riversleigh Station await description, but none approaches the size of *L. magna*. The large size of *L. magna* is unusual amongst the Tertiary frogs known from Riversleigh Station, for the species there are predominantly small, a feature

characteristic, amongst extant frogs, of geographic areas that experience a high rainfall (Tyler 1989b, Fig. 8) and are not exposed to seasonal aridity.

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**THE DISTRIBUTION OF ECHINOCEPHALUS OVERSTREETI DERDORFF
& KO (NEMATODA), A PARASITE OF ELASMOBRANCH FISHES IN
AUSTRALIAN WATERS**

BY IAN BEVERIDGE

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